Postdoctoral Appointee in
Autoignition of Transportation-Relevant Fuels

The Center for Transportation Research (CTR) within the Energy Systems Division at Argonne National Laboratory has an immediate opening for a Postdoctoral Appointee to conduct investigations of autoignition and associated phenomena for various transportation-relevant fuels and fuel surrogates at conditions relevant to advanced combustion concepts, such as Low Temperature Combustion (LTC), e.g., gasoline compression ignition (GCI).

Project description: The research activities are directed towards better understanding of, and capabilities to model the decomposition and oxidation of real fuels (e.g., gasoline), and associated processes at engine-relevant conditions. Experiments will be performed using a rapid compression machine (RCM), and chemical kinetic and other modeling will be undertaken to post-process and interpret the data. Collaborations will engage other members of the Engine Combustion, and Fuels, Engine & Aftertreatment Research Groups in the CTR and scientists in the Chemical Sciences and Engineering Division at ANL, as well as researchers at other national labs and international institutions.

Qualifications: The candidate must have a PhD in mechanical/aerospace engineering, chemical engineering, chemistry, or related discipline. Considerable knowledge of combustion fundamentals is required, as is demonstrated expertise using experimental devices to measure fundamental properties such as ignition delay, flame speed, fuel decomposition/oxidation intermediates and products, etc. Good experience programming with Labview and Fortran/C++, and developing control systems will be needed. Demonstrated motivation, energy and ability to originate, carry out and publish significant original research are required. The position requires good collaborative skills, including the ability to work well with other ANL divisions, laboratories, and universities, in addition to the ability to work independently. Good oral and written communication skills are required. It is desirable to have knowledge of combustion chemistry, and experience with various diagnostic techniques, e.g., mass spectrometry and optical-based methods. Some experience using simulation software, e.g., CHEMKIN, and scripting languages, e.g., Python, is also desired, along with the capability to supervise graduate and undergraduate students. Knowledge of internal combustion engines and LTC would be beneficial for this position.

Appointment period: The initial appointment period is one year, with renewal possible up to three years total, subject to continued project funding and satisfactory performance.

Application: Candidates will be evaluated until the position is filled. Please visit http://www.anl.gov/careers to submit your application materials (Requisition Number 322444). Finalists will be required to provide: (i) a detailed academic CV; (ii) list of publications, abstracts and significant presentations; (iii) three letters of recommendation from non-Argonne personnel; (iv) graduate and undergraduate transcripts; and (v) a two-page research proposal. Direct all inquiries to Dr. Scott Goldsborough (scott.goldsborough@anl.gov).

Argonne National Laboratory (http://www.anl.gov/) is an internationally-renowned, multidisciplinary science and engineering research facility addressing vital challenges in areas of clean energy, environment, technology and national security. The CTR at Argonne conducts research and develops technologies related to internal combustion engines, fuels and aftertreatment systems, tribology and thermo-mechanical processes, vehicle systems, systems modeling and controls, as well as smart grids / interoperability.